HOMEWORK 1, CALCULUS AND LINEAR ALGEBRA, 2016/2017

Assigned 11/11/2016, due 11/18/2016, collected from 11pm to 11.15pm sharp!

Name and Family Name (CAPITAL LETTERS): _____

MATRICOLA N.: _____

Exercise 1

Solve the following quadratic equations BY USING THE COMPLETION OF THE SQUARE METHOD:

a) $x^2 + 5x + 4 = 0$

b) $3x^2 - x + 6\pi = 0$.

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Exercise 2

Write the equation of the line passing through the points $(2, 2)$ and $(-1, 3)$. What is the *angular coefficient* of the line? And its *intersection with the y-axis*? Plot the line on the Cartesian plane.

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Exercise 3

Write the *even part* and the *odd part* of the following functions:

a) $f(x) = x^6 + 5|x|$

b) $f(x) = x^2 - x$

c) $f(x) = \frac{x-2}{x^2-1}$.

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Exercise 4

The graph of the function $f(x) = x^2 + 5x + 4$ is a parabola. Find its intersections with the x-axis and the y-axis. Find the appropriate shifts (horizontal or vertical) such that

a) the shifted parabola intersects the x-axis at the points $(-3, 0)$ and $(0, 0)$

b) the shifted parabola intersects the y-axis at the point $(0, 0)$.